

### **REMARKS**

A Petition for Extension of Time is being concurrently filed with this response.

#### **Status of the Claims**

Claims 1 and 4-9 are pending in the application. No claims are being added, canceled or amended. Thus, a listing of the claims is not needed. Reconsideration and allowance of all of the pending claims is respectfully requested.

#### **Claim Rejections - 35 U.S.C. §103**

Claims 1 and 4-9 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Ichikawa '325 (U.S. Patent No. 6,582,325). Applicants respectfully traverse this rejection for the following reasons.

Applicants first note that, in the outstanding Office Action, the Examiner does not respond to the amendment to claim 1 filed on October 6, 2006. Claim 1 now recites that the cycloaliphatic diisocyanate base resin is present in an amount greater than 56% by weight based on the total weight of the cover. As discussed in the October 6, 2006 reply, since Ichikawa '325 uses a cycloaliphatic diisocyanate as a crosslinking agent, it is only used in extremely low amounts. See pages 5-6 of the October 6, 2006 reply.

Ichikawa '325 specifically states that the dicyclohexylmethane diisocyanate is present in an amount of between 0.05% and 10%, and most preferably from 0.2% and 5%. See Ichikawa '325 column 3, lines 51-56. Ichikawa '325 also expressly states that using the dicyclohexylmethane diisocyanate at more than 10% by weight would produce a reaction product that would experience substantial yellowing with time, and would have degraded

thermoelastic properties and resilience. See Ichikawa '325, column 3, lines 59-62. Accordingly Ichikawa '325 does not disclose or suggest all of the limitations of claim 1 and this rejection has been instantly overcome.

In addition, applicants here provide **Exhibit 1**, which shows that the urethane molecules of the present invention (a) contain alicyclic diisocyanate as the base resin. Exhibit 1 also shows that Ichikawa '325, on the other hand, discloses urethane molecules which do not contain alicyclic diisocyanate but are modified or crosslinked by the alicyclic diisocyanate. Applicants respectfully maintain that Ichikawa '325 uses a different material. The cover resin of Ichikawa '325 is a reaction product of the thermoplastic polyurethane elastomer with dicyclohexylmethane-4,4''-diisocyanate (see, e.g., claim 1 of the reference). Or put differently, in Ichikawa '325, the thermoplastic polyurethane elastomer is additionally modified with a specific diisocyanate compound when producing its golf ball cover. In contrast, the present invention does not use this reaction product.

Applicants also traverse the conclusion in the Office Action at page 2: "Therefore, the deformation amounts are obvious since the materials are identical." Such a conclusion does not take into account all claimed features as mentioned above. The materials between the present invention and Ichikawa '325 are not identical.

Applicants respectfully submit that Ichikawa '325 does not disclose or suggest all of the limitations of claim 1. The Examiner has not established a *prima facie* case of obviousness of the present invention. See M.P.E.P. § 2144.08(II)(A). Accordingly, allowance of all of the pending claims is respectfully requested.

*Unexpected results*

Even assuming arguendo that the Examiner has established a *prima facie* case of obviousness of the present invention, applicants submit that the present invention exhibits unexpected results over the prior art. See M.P.E.P. § 2144.09 (see section entitled "*Prima Facie* Case Rebuttable By Evidence of Superior or Unexpected Results"). Applicants here provide an exhibit by Toshiyuki Tarao attesting to the fact that the present compositions demonstrate unexpected results over the prior art. See **Exhibit 2**. Applicants plan to submit Exhibit 2 as a signed declaration in a supplemental reply. Exhibit 2 shows that the cover of the Ichikawa '325 golf ball is different from the cover of the golf ball of the present invention. The Ichikawa '325 cover shows poor scuff resistance in comparison with the presently claimed golf ball cover.

*Summary*

Applicants submit that Ichikawa '325 does not disclose or suggest a golf ball cover with cycloaliphatic diisocyanate base resin present in an amount greater than 56% by weight based on the total weight of the cover as recited in claim 1. In addition, applicants have here demonstrated that the present compositions show unexpected results over the closest prior art. Accordingly applicants submit that the patentability of the present claims has been fully demonstrated. An early reconsideration and Notice of Allowance are respectfully requested.

**Conclusion**

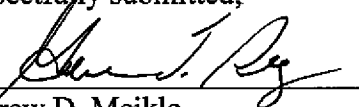
Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) respectfully petition(s) for a two (2) month extension of time for filing a reply in connection with the present application, and the required fee of \$450.00 is attached hereto.

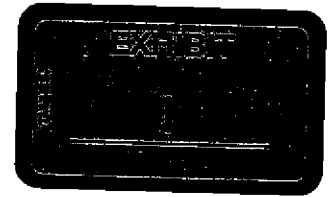
Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Mark Konieczny (Reg. No. 47,715) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

Dated: May 29, 2007

Respectfully submitted,

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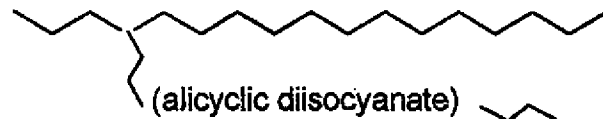
(a) Present Invention

Urethane Molecule



(b) Ichikawa Reference

Urethane Molecule





IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of :

Takashi SASAKI et al. :

Serial No. 09/987,469 :

Filed November 14, 2001 :

GOLF BALL :

DECLARATION

I, Toshiyuki TARAO, residing in 3-3-50, Yamamoto-higashi,  
Takarazuka-shi, Hyogo-ken, Japan, declare and say as follows:

1. I am one of co-researchers working with the inventors of the present application.
2. In 2005, I graduated from Graduate School in Osaka University and received a Doctor's degree in Engineering from said University.
3. Since 2005 to the present time, I have been employed by Sumitomo Rubber Industries, Ltd. as a researcher. I have been engaged in researching materials for golf balls. I have enough technical knowledge about materials for golf balls.
4. With respect to the above-identified application, some experiments were carried out under my direction and supervision, and I beg to submit herewith the exact report thereon.

## Experiments 1 and 2

### Preparation of cover compositions

The formulations showed in Table 1 (Experiments 1 and 2) were mixed using a kneading type twin-screw extruder to obtain a pelletized cover compositions. In order to confirm Examples and Comparative Examples of the present invention, Examples 1 and 2 and Comparative Examples were also conducted again, as shown in Table 1. The extrusion condition was,

a screw diameter of 45 mm,

a screw speed of 200 rpm,

a screw L/D of 35.

The formulations were heated at 200 to 260°C at the die position of the extruder. The resulting cover composition was applied to a rubber core A which was prepared in the present application to form a golf ball. The golf balls were subjected to evaluation of scuff resistance and discoloration and the results are shown in Table 1.

### Scuff resistance

A pitching wedge commercially available was mounted on a swing robot manufactured by True Temper Co., a golf ball was hit by the wedge at a head speed of 36 m/sec at one point and was then hit by the same condition at another point. The two points were evaluated by checking the surface appearance by visual observation. The evaluation criteria are as follows.

#### **Evaluation criteria**

**o** : The surface of the golf ball slightly has a cut, but it is not particularly noticeable.

**Δ** : The surface of the golf ball clearly has a cut, and the surface becomes fluffy.

**x** : The surface of the golf ball is considerably chipped off, and the surface noticeably becomes fluffy.

#### **Discoloration**

The resulting golf ball was put in a sunshine weather meter manufactured by Suga Test Instruments Co., Ltd. to conduct an accelerated exposure test. If discoloration does not occur at all, the result of "excellent" is shown in Table 1.



Table 1

Cover Composition		Ichikawa		Preset Invention		
		Experiment 1	Experiment 2	Example 1	Example 2	Comparative Example 2
Pandex T7298	thermoplastic polyurethane elastomer of aliphatic isocyanate	75	50			
Pandex TR3080	thermoplastic polyurethane elastomer of aliphatic isocyanate	25	50			
Desmodur W	dicyclohexylmethane-4,4'-diisocyanate	1.5	1.5			
Elastollan XNY90A	thermoplastic polyurethane elastomer of dicyclohexylmethane-4,4'-diisocyanate			100		
Elastollan XNY97A	thermoplastic polyurethane elastomer of dicyclohexylmethane-4,4'-diisocyanate				100	
Pandex T7890	thermoplastic polyurethane elastomer of hexamethylene diisocyanate					100
Scuff resistance		Δ	Δ	○	○	Δ
Discoloration		Excellent	Excellent	Excellent	Excellent	Excellent

In the above evaluation, the scuff resistance is shown as oΔ which shows between o and Δ.

### Conclusion

As is clearly shown in Table 1, the cover prepared by the method of the Ichikawa reference shows not excellent scuff resistance in comparison with the cover of the present invention. The cover of the Ichikawa reference has crosslinking bond between polyurethane molecules but shows poor scuff resistance. In the present invention, however, the cover shows excellent scuff resistance without modification of urethane molecule. The present invention controls easily the preparation of cover composition, because no chemical reaction between urethane molecule and specific diisocyanate occurs.

5. It is declared by undersigned that all statements made herein of undersigned's own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S. Code 1001 and that such willful false statements may be jeopardize the validity of this application or any patent issuing thereon.

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Toshiyuki TARAO

Dated this    th day of May, 2007